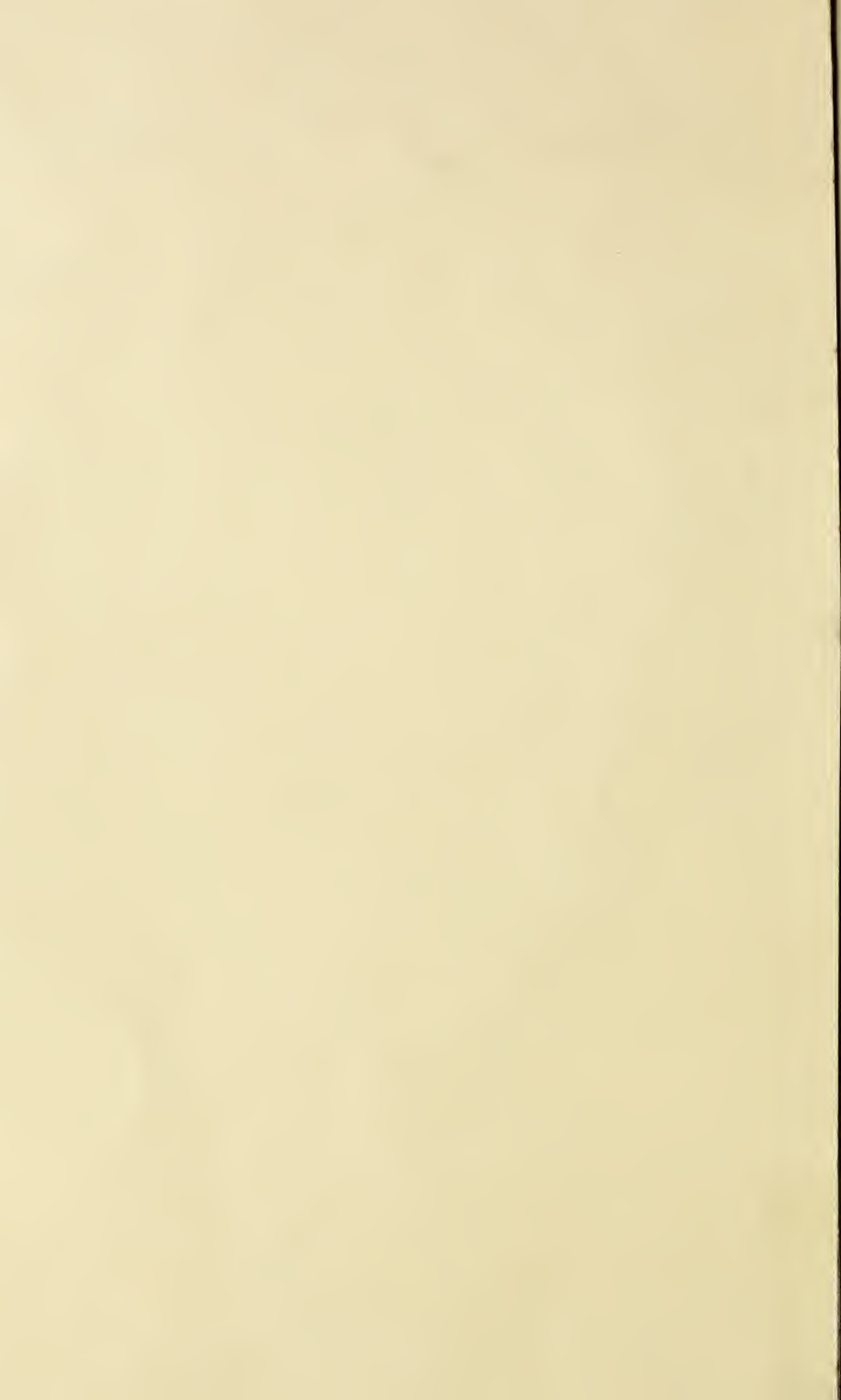


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THE Student Agricultural Union can hardly fail to be a signal and all-inspiring success.

THE question is often asked why so many students fail in their studies?

There is no question as to the fact of this, but what is the reason?

Is the student always to blame for his "condition or failure?" If we rightly look at this matter we must say "No."

Too often the instructor himself is the cause of the student's failure. Lack of interest, tardiness and carelessness in work should be laid on the instructor. If the student is guilty of these, it is the instructor's duty, as an instructor, to inform the student that if he continues thus his mark at the end of the term will not be satisfactory to him.

The student often thinks he is doing what is required of him. He attends his classes and does his laboratory work. Often the instructor never says a word to the student that he is not doing what is required of him. How much more

successful would the instructor be if, when he has a student uninterested in his work, to tell him that he is not doing what is expected of him, the result at the end of the term would be different than what it otherwise would be.

In too many cases the instructor is to blame, and he often does an injustice when he fails a student; and he further fails in his mission as an instructor in not being able to interest students, and it would be better for himself and a blessing to the students and the institution with which he is connected, would he sever that connection as soon as possible.

In the past the educational work of the agricultural department has been largely preparatory, but much was then accomplished, and when we consider the great advance, recently made under the present management of this department, we anticipate for the future most surprising results, and there are all reasons to believe that the next ten years will reach a new era in this work, for the advancement of scientific education among the farmers of the State.

THE dairy school was closed with the end of the winter term. This school has been in operation only since January 1, and no pains or expense have been spared in making it in every way a model institution, thoroughly equipped with every conceivable appliance for the handling of milk and the making of butter and cheese. It is designed to teach in this school, theoretically and practically, all those scientific principles that are in any way connected with dairying in all its branches, from feeding of cows that produce the milk to the finished products ready for market. Its aim is to train its students so that they shall be able to handle milk without waste, and to make butter and cheese of uniform standard and of the highest quality. There were forty-three students who took this course, and double that number is expected next year.

Can any one estimate the power for

good that this body of educated butter and cheese makers will exert? Scientifically trained, both in the theory and practice of their business, able to give the reason why for every change from the milk pail to the finished product; yes, more than that, able to tell how the cows should be fed and handled to give good milk; able to run an engine or a milk separator, or any other dairy appliance intelligently, skillfully and scientifically; skilled in use of the milk tester; able to determine accurately the relative value of each portion of milk delivered; in short, knowing how and feeling a professional pride in doing good and honest work. Can any one conceive of a better instrumentality for the improvement of our dairy products? Dairying is one of the farm industries standing in the front rank of our State, and many earnest, skillfully trained young men are needed to complete its highest improvement. The course is but twelve weeks long, and during the months of January, February and March of each year, a time when every boy can best be spared from the farm. Now, it matters not whether the boy desires to take the course in dairying alone; he can take other work as well.

There are no special qualifications for entering. Any boy with a common school education will be admitted. The cost is small. If one receives a free scholarship and takes the short course in agriculture, and elects dairying in this course, the only money needed is for board and a few incidental expenses, but if the student takes the special dairy course he will be required to pay fifteen dollars in fees.

THE AGRICULTURAL STUDENT urges farmers' boys to make an effort, serious if need be, to come and get this instruction. None will ever regret coming, because the best outlay of money is in making a good preparation for the business of life.

MR. W. D. GIBBS, of Illinois, has been appointed to the position of Foreman of Farm and assistant to Professor Hunt, *vice* Stump resigned.

Mr Gibbs is a graduate and post-

graduate student of University of Illinois, having received one of the five fellowships of that institution. He has also completed during the last year the dairy course in the Wisconsin State University. He is thoroughly prepared for the position for which he has been selected. He is recommended as being one of the best students ever graduating from the University of Illinois.

THE retirement of Mr. Stump from the agriculture department and the University will be regretted by all. It was greatly due to his efforts, while a student here and after graduation, that the agricultural department has developed so rapidly. He leaves the University to go on his own farm and try his fortunes there.

Mr. Stump has all the qualities for success, and we predict for him a successful and honorable future.

THERE are moments of discouragement that come to every one. There has scarcely been a man that has lived who has not had his "blue days." But these moments and days are as transient as all others, and he is wise who does not forget this fact when the most discouraging circumstances are present. The ability to take a general view of life instead of being blinded by a few particulars has been a source of strength to many a man. Savonarola, the great Florentine reformer, said, "Do you ask me in general what will be the result of the conflict? I answer, Victory. But if you ask me in particular, I answer, Death." There is much food for reflection in these words when we consider the depressing times our country is experiencing. How much better it would be not to think of gloom and defeat, but of victory and the good times that are destined to come. The mission of the agriculturist has not yet been compassed. The day is fast approaching when all will plainly see that he is the stability of all government. Look on the bright side then, buckle on the armor of education and take up the sword of thorough preparation, so as to be ready to respond when the summons come to go into action.

THE Co-experimental Union, as proposed in the February number of the AGRICULTURAL STUDENT, has materialized, under the name of "The Agricultural Students' Union."

A constitution or plan of management has been adopted by the Union, and active preparation is being made to carry out its objects.

The aim of the Union, as set forth by the constitution, "shall be to conduct co-operative experiments, and to encourage the improvement of varieties by a system of judging, and to hold annually a meeting of the members of said Union."

The Union will be governed by an executive committee or board of directors, which shall select the proper persons as directors of the different divisions of experiments. It is urged that all ex-students and alumni will avail themselves of this opportunity of being a beneficial aid to their own work and to agriculture in general. The Executive Committee is composed of men from different sections of the State. The following compose the committee:

F. P. Stump, Convoy, Ohio; Sherman Hood, Meander, Ohio; Erny J. Riggs, Columbus, Ohio; C. E. Spiers, Atwater, Ohio; C. W. Burkett, Columbus, Ohio. Any information can be received by addressing the Secretary, E. J. Riggs or any other members of the committee.

Mr. R. W. Dunlap has been selected as Director of the Agricultural Division and J. S. Hine Director of the Horticultural Division.

Circular letters have been sent out to all alumni and ex-students, and it is hoped a part, or better if all, will take an interest and active part in this and make it a success. Possibly there is no movement that will better bind together the ex-students and alumni and make a greater accretion for good among ex-students, alumni and agriculture in general.

The Agricultural Student Union.

This union was organized the 25th of March, and the following officers were elected:

President, F. P. Stump, Convoy, Van Wert county, Ohio; Vice President, S. Hood, Meander, Tuscarawas county, Ohio; Secretary-Treasurer, E. J. Riggs, O. S. U., Columbus, Ohio; member Executive Committee two years, C. W. Burkett, O. S. U., Columbus, Ohio; member Executive Committee one year, C. E. Spiers, Atwater, Portage county, Ohio.

It was then voted to send out immediately a circular to the ex-students and alumni of the school, and to such other ex-students and alumni of the University as are known to be engaged in farming in Ohio.

The Executive Committee has decided for the present to have but two divisions of the experimental work—horticulture, of which it has appointed Mr. J. S. Hine, B. Sc., O. S. U., '93, and present foreman of the horticultural department O. S. U., director; and agriculture, of which it has appointed Mr. R. W. Dunlap, senior student of agriculture, O. S. U., director.

The Executive Committee has decided to ask the active co-operation of the Ohio Agricultural Experiment Station at Wooster, Ohio, of the departments of agriculture, horticulture, forestry, agricultural chemistry, botany, zoology and entomology, of the Ohio State University, of the State Board of Agriculture and the agricultural press of Ohio in the work of the union.

It is only fair and proper to say, however, that the union had the tender of sympathy and aid from most of these sources, even before its birth.

The idea is to gather into one great organized, active force all the fragmentary forces, now mostly dormant in our State, which can readily and valuably work along the line of the solution of agricultural problems, which can be more readily and effectively solved by co-operative experiments in a large number of localities of the State, representing all, or practically all, of the dif-

She Stoops to Conquer.

April 19th and 20th.

ferent environments presented by the State, than by any plan of work that is at present available to our Experiment Station working alone.

It is believed that it lies within the power, and is the province of this union, to accomplish for the farmers of Ohio many works of great value within a few years, that are by any other means practically impossible of accomplishment, and to do these works at a cost so slight that none will ever feel the burden. Even those members who do the most work we are sure will reap for themselves benefits in self-development and acquired knowledge and power that will far outweigh the outlay in time and money required for the work.

Let the members remember that every co-operative work is a sort of a bank in the management of which the law of compensation as laid down by Emerson is strictly adhered to, and that every man will be rewarded strictly in proportion to the amount of stock in the form of earnest work he puts in.

Let us firmly believe that abundant good work brings superabundant good reward in the return of our own with usury!

Fraternally,

F. P. STUMP.

Convoy, Ohio.

Co-operative Agricultural Experiments in Canada.

Through the kindness of President Hills and Director Zavitz of the Ontario Agricultural College, Canada, Professor Lazenby has received some interesting letters and circulars concerning the Ontario Agricultural Experimental Union. This union is an association of the students, ex-students and officers of the college. It was organized sixteen years ago, and has held annual meetings at the college for the purpose of renewing acquaintance and discussing various agricultural subjects.

In 1886 a system of co-operative experimental work was started. The first year there were only twelve experimenters; the next year there were sixty; the year following one hundred; and the

number has gradually increased until in 1894 there were 1,340 conducting one or more experiments in agriculture. At first the work was confined mainly to the ex-students of the college, but later many prominent farmers have joined in making experiments.

Besides co-operative experiments in field crops, there are at present experiments in horticulture, agriculture, dairying, live stock, botany and entomology, each under a separate committee.

Reports of successful and valuable experiments were received during the past year from every county in the province of Ontario. Each experimenter has not alone the results of his own work, but also the benefit of the report of similar experiments from all parts of Ontario.

The results of all the tests are presented in a summary form at the annual meeting of the union, and are afterward published as an appendix to the report of the Agricultural College.

Among the co-operative experiments in field crops for the year 1895 are the following:

"Comparing the relative value of four varieties of millet."

"Growing lucerne as a crop for green fodder."

"Growing crimson clover as a crop for hay."

"Testing six leading varieties of fodder corn."

"Testing five leading varieties of spring wheat."

"Testing five leading varieties of barley."

"Testing six leading varieties of oats."

"Testing five leading varieties of mangels."

"Testing five leading varieties of turnips."

Judging Horticultural Products.

The Secretary of the School of Agriculture has recently received a letter from the well known horticulturist, Matthew Crawford, which presents a plan for encouraging horticulture in Ohio, and which can scarcely fail to be of ben-

efit to the agricultural students in the University.

The plan, briefly stated, is this: To invite horticulturists in all parts of the State to send specimens of their best products to the State University, and have them passed on or judged according to their merits.

Many amateur growers and some professionals would be glad to have their products judged or rated by an impartial committee. Descriptive notes of the different products and comments thereon would furnish interesting and valuable matter for publication in the *STUDENT*, *Farmer* or other well known mediums.

It is believed that this plan would encourage many worthy horticulturists who live where they can not avail themselves of the advantages of a horticultural society.

It would give all a fair chance to show the products of their skill when at their best. It would give the students an opportunity to acquaint themselves with varieties from all parts of the State, and they could thus learn much in regard to the adaptability of different soils and climate.

This plan has been cordially indorsed by the recently formed Agricultural Union.

It has been decided to begin in a small way and extend the system of judging if found to work successfully. Circulars will soon be sent to the horticulturists of the State inviting them to send their best samples of small fruit.

THE regular monthly meeting of the Columbus Horticultural Society was held at Canal Winchester last Saturday, March 30, in connection with one of the branch societies, which is located at that place. The attendance was large and the papers presented, together with the discussions which followed, were equally interesting and profitable.

The following papers were read: "The New Onion Culture," E. S. Tussing; "Spring Work on Lawns," Prof. W. R. Lazenby; "Raspberry Culture," R. J. Tussing; "A Potato Experiment," H. W. Phelps.

Albert M. Bleile, M. D.,

Professor of Physiology and Histology in the Ohio State University, has been in that capacity since 1891. He graduated from Starling Medical College in 1875, and proceeded to extend his knowledge under Professor Ludwig, at Leipsic, and at Paris under Professor Ranvier. After completing his studies in Europe, he returned to Columbus, Ohio, where he began the practice of medicine. After a time in connection with his practice he accepted a position



as professor of Physiology in Starling Medical College, which position he still holds in connection with his work at O. S. U.

Professor Bleile is a man of wide reputation in his profession, and has done much original work which is of a high order of merit. At present he, with others at the University, is experimenting upon electrocution and hydrophobia, having done much work in both. During the coming summer he is going to work in the Hospital for Epileptics, Gallipolis, Ohio, in an endeavor to discover the cause of epilepsy.

Professor Bleile has been offered different positions of honor since his connection at O. S. U., with a salary greatly in excess of what he is getting here, but he prefers to remain here in connection with O. S. U.

Professor Bleile is universally liked, and his affable manner in the class room, and his fair methods are commended by all those who have the good fortune to be under him. By taking an interest in all college affairs, and aiding athletics and literary work, and of his extended knowledge, he is held high in the estimation of the student body.

His publications consist of numerous articles on scientific and physiological subjects. These articles have appeared in the proceedings of scientific societies and in the scientific journals.

Professor Bleile, in addition to his University work, is actively engaged in original experiments.

Soil Physics.

Each year it is coming to be more and more clearly recognized that the growth of crops is dependent largely upon the physical properties of the soil. The chemical properties of the soil are very important, and must never be overlooked; but more recent investigations indicate that the benefit derived from drainage, tillage and manuring is due more largely to their effect upon the physical properties than upon the chemical properties. In order to study the physical properties of soils more thoroughly and practically, a laboratory has been fitted up by the department of agriculture of the Ohio State University, in which each student is required to conduct a certain experiment with different soils. This work has been carried on through the winter term in connection with the class room instruction in soils.

The following eight experiments will serve to show the nature of the work:

1. The determination of specific gravity.
2. Determination of the volume and weight of soils.
3. The power of retaining moisture in the soil in its highest degree of looseness.
4. The power of retaining moisture in the soil when compacted.
5. The evaporating power of the soil.
6. The filtering power of the soil.
7. The capillary attraction of the soil.
8. The behavior of the soil toward gases.

Two students work together in making each experiment, and as there were sixteen students in the class each student was occupied in performing an

experiment. Two hours each week were devoted to this work. Five soils were used, one each from the farm of T. B. Terry, Hudson, Summit county; Alva Agee, Cheshire, Gallia county; and the Ohio Agricultural Experiment Station, Wooster, Wayne county, and two from the farm of the Ohio State University, Columbus. These soils served to give the students experience with distinctly different types. These soils are also being more carefully studied by Messrs. Burkett and Riggs, two senior students who are preparing a thesis on "Some Physical Properties of Ohio Soils."

Notes on Milking.

The quality and the quantity of the milk are controlled by the individuality, breed, care and feed of the cow. These, in a degree, govern the secretion of milk, but perhaps the most critical point in the process of milk becoming a product is the time of milking, when the milk is forced out in a fine spray, exposed on all sides.

An incident which happened here in Ohio not many weeks since will suffice to show the importance of the surroundings being carefully guarded while milk is being drawn from the udder. Near one of the large cities is a dairyman who sells the milk of his dairy to a milk-buyer in the city. Everything was going on nicely between the dairyman and the buyer, until, for some reason, the dairyman made a change in time of feeding. He told his men to feed the ensilage before milking. Previously it had been fed after milking. The next morning the ensilage was fed and milking was commenced before the cows were through eating. That morning, as was the custom, the milk was put on a train and sent to the city. It had not much more than arrived at its destination before the dairyman received, from the buyer, a telegram, to the effect that he had no use for such milk. "It tastes funny."

There was no particular attention given to seek out the cause. The next morning the same order in milk-

ing and feeding was followed. Again, he sent the milk to his buyer, and again he received a telegram. This one was more severe in its denunciations than the first. The next day found the time of feeding changed to the old custom of milking before feeding. This incident surely goes a good way to condemn the practice of feeding before, or while the milking is being done. It goes farther. The writer knows of a dairy where the cows were fed ensilage before being milked, and they ate the ensilage while the milking was being done. This milk was all sold to city customers who are supposed to be rather fastidious in their tastes. They paid a high price for this milk because it was good. The question naturally arises, wherein lies the difference between these instances? In the first instance we notice the men who did the feeding also did the milking. It is probable that they did not brush their clothes or wash their hands before beginning the milking. In the other instance the milkers came to the barn, brushed off the udder and hind parts of the cows, and before arranging the cans and strainers, and before doing the milking, put on a nice, clean suit of ducking. In the first instance small particles of food, dirt and ensilage got in the milk. In the other, everything about the milking was clean and tidy.

To the experienced and successful dairyman it is needless to urge the importance of cleanliness of the milkers. For those who have trouble in keeping them tidy and clean, and for those who would like to have their milkers take an interest in cleanliness we would suggest the use of a suit of clothes to be used only while milking. The suit should be large enough to be slipped over the other clothes and will cost less than one dollar. A very serviceable suit, consisting of overalls and a loose blouse, can be made of white ducking, which shows every trace of dirt. They make excellent

indicators for telling which milker is the most tidy and cleanly about their work.

The time of cleaning the stables and of sweeping, should be after the milking is through. Never milk while the stable is full of dust or bad smell. Never milk with dirty hands. Never wear dirty clothes while milking or while handling the milk.

**Relative Food Value of Dry
Whole, Soaked Whole,
Wet Ground Wheat
and Dry Whole
Corn.**

BY THE DEPARTMENT OF AGRICULTURE,
OHIO STATE UNIVERSITY.

Many farmers have been feeding wheat to hogs, since the low price in wheat, with good results. Some have soaked the wheat, some have fed it dry and others have fed ground wheat, not knowing which was the most profitable way to feed wheat. The department of agriculture has conducted an experiment for the purpose of determining as much as one experiment will, decide such a question. It will be necessary for many such experiments to be made before the question will be solved.

Sixteen high grade Poland-China pigs, eight barrows and eight sows, whose average weight was seventy-nine pounds, were selected from a lot of eighteen. They were all put together and fed during two preliminary weeks on wheat and corn. They were then divided into four lots—two barrows and two sows in each lot, divided as near equal by weight as could be, and giving attention to feeding qualities. One lot was fed dry whole wheat, another was fed dry whole corn, another was fed wheat soaked for twenty-four hours, the other fed ground wheat mixed with cold water at the time it was fed. No other food was fed except coal ashes, and salt sulphur. They had all the fresh water they needed. The experiment was conducted by the editor of this department.

The pigs were weighed three times for the initial weight two days before

the experiment was commenced and two days after, and the average of these taken. The weights at the conclusion of the experiment were received in the same way. The experiment continued during fifteen weeks.

The following table gives summary of results:

TABLE SHOWING COMPARATIVE FOOD VALUE FOR PIGS OF DRY WHOLE WHEAT, SOAKED WHEAT, GROUND WET WHEAT, AND DRY CORN.

	Lot A. Soaked Wheat.	Lot B. Ground Wheat.	Lot C. Dry Wheat.	Lot D. Dry Corn.
Average weight Nov. 1, 3, 5.....	317.	319.	320.	309.
Average weight Feb. 14, 16, 18.....	791.	895.	628.*	730.
Gain during 15 weeks....	474.	576.	392.†	421.
Gain daily per pig.....	1,128.	1,371.	1,166.	1,002.
Total food eaten during 15 weeks.....	37. bu. 2222.	38.27 bu 2296.	29 56 bu 1774.†	37 32 bu 2090.
Pounds of food eaten daily per pig.....	5.29	5.42	5.28	4.97
Pounds of food to make 100 pounds increase....	468.7	398.6	452.5	496.4
Pounds of increase from one bushel.....	12.8	15.0	13.2	11.3
*Value of bushel at \$5 cwt.	64.0	75.0	66.0	56.5
Cost of food for 100 pounds of increase....	\$3.90	\$3.73	\$3.78	\$3.09
Corn, 35 cents; wheat, 50 cents; grinding, 7; soaking, 2.				

* Average weight of three pigs not four as the rest.

† Four pigs for first six weeks, three for the last eight.

The best results in every way was obtained from ground wheat. The next best results were from the dry wheat. It would be well to state here that during the several weeks of the experiment one pig in the dry wheat pen took sick and died within twenty-four hours. In consequence of this, that week's report was not kept for that lot, and have this lot for fourteen weeks instead of fifteen as the rest. It is pointed out in the table. It would also be well to state

that there was one sow pig in the corn lot that would not fatten. It only gained thirty-four pounds, while the others gained one hundred and forty. After the experiment was closed she was put in by herself. She ate well, but did not gain any better. The soaked wheat lot ate more wheat, took more pounds to make a pound of increase and less pounds per bushel than the dry wheat. The results were decidedly against soaking the wheat.

The ground wheat more than paid for grinding. I counted the grinding at seven cents, which is more than it will cost most farmers. The ground wheat brought seventy-five cents a bushel, the dry wheat sixty-six cents, soaked wheat sixty-four cents and corn 56.5 cents, pork selling at \$5 a hundred on foot.

According to prices, the corn was the most profitable and ground wheat next, costing \$3.09 for 100 pounds increase with corn, \$3.73 for ground wheat, \$3.78 for dry wheat. \$9.90 for soaked wheat.

Bone Shell and Gravel for Hens and Pullets.

In our February number we made a partial report of an experiment that was being carried on here at the University in the poultry department, to prove the value of green ground bone and shell for laying hens.

The experiment commenced November 1, 1894, and closed March 20, 1895, having run twenty weeks, and was conducted as follows:

Eighty grade Leghorn fowls were selected, forty of which were, with few exceptions, yearling hens and forty were pullets. These fowls were separated into four divisions, with ten hens and ten pullets in each division. Pullets and hens were kept separate, thus requiring eight pens.

The first division received green ground bone, crushed oyster shells and

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STARKEY'S SHOE HOUSE.

gravel. The second division green ground bone and gravel. The third division crushed oyster shells and gravel. The fourth division gravel. We mean by green ground bone in first and second divisions bones secured from butcher shop and elsewhere, with what meat and gristle that adhered, ground through a machine for the purpose. We used the Mann green bone cutter, manufactured at Milford, Massachusetts.

The crushed shells were bought prepared for use. The gravel was the washings of the Olentangy river, which flows near by.

TABLE SHOWING THE WEEKLY RESULTS FOR TWENTY WEEKS.

Bone, Shell and Gravel. Division I.		Bone and Gravel. Division II.		Shell and Gravel. Division III.		Gravel. Division IV	
10 Pullets.	10 Hens	10 Pullets.	10 Hens.	10 Pullets.	10 Hens.	10 Pullets.	10 He's
7	3	12	0	6	0	10	0
5	1	9	2	3	0	4	0
5	0	6	2	2	0	0	1
4	4	5	3	4	0	0	1
17	13	8	4	4	0	0	5
20	13	12	12	7	0	2	4
11	14	9	9	2	0	0	1
5	7	1	10	7	0	1	0
6	0	3	13	4	0	0	0
12	3	10	11	9	2	4	0
18	1	15	5	12	2	9	1
30	5	25	9	19	1	16	0
24	11	20	8	16	1	30	0
31	8	22	6	19	0	17	3
29	7	16	5	11	0	12	5
28	10	10	9	7	5	14	0
29	11	7	7	3	8	8	1
34	15	10	14	13	16	15	6
29	17	13	17	21	16	19	11
30	12	14	10	16	15	15	8
374	155	227	156	185	65	172	47
37.6	15.7	24.0	16.8	18.5	6.5	17.2	6.1
52.9		38.3		25.0		21.9	
\$10.58		\$7.66		\$5.00		\$4.38	
1.39		1.11		.28		.00	
9.19		6.55		4.72		4.38	

Eggs sold on an average of about 24 cents per dozen, or two cents a piece during the entire experiment.

The first division received thirty-seven pounds of bone and twenty-eight pounds of shell, counting bone at three cents a

pound and shell at one cent, making a cost for this division of \$1.39, leaving a balance to their account of \$9.19, or a gain over those fed nothing, of \$4.70.

Second division received twenty-seven pounds of bone at a cost of \$1.11, leaving a balance of \$6.55, a gain over those fed nothing \$2.17.

Third division received twenty-eight pounds of shell at a cost of twenty-eight cents, leaving a balance of \$4.72, a gain over those fed nothing of \$3.40.

The fourth division received only gravel, which was counted free; the total balance \$4.38.

Figures below first line of totals represent the average number of eggs per hen.

There were five hens that died of roup in the pen of old hens in division four, thus raising their average considerable. These figures show where any others died.

In each of these divisions the other feed, aside from substances mentioned, was as near uniform as possible without weighing. That all had plenty to eat, is proven by the fact that the average weight was about eight ounces or more at close of experiment than at beginning.

This experiment shows plainly that it pays well to feed green ground bone, but that it pays better to feed shell and bone combined, while the shell alone paid little more than cost. Another thing worthy of mention is the fact in the division receiving only gravel there were quite a number of soft shelled and poor shell eggs, while all the others seemed to have good shells.

These results might have been different if the hens could have had the run of the farm, but it would have been impossible to give each pen exactly the same conditions.

In the experiment each pen had exactly the same chance, accommodations being equal in each case, thus rendering the results comparable.

Aside from the value of bone and shell, another very interesting fact is shown in this experiment. The comparative value of hens or pullets for

winter laying. In this case the forty pullets and hens were under the same average conditions. Results show pullet laying 957 eggs, at two cents or \$19.16; old hens, 423 eggs, at two cents or \$8.16, leaving a balance of \$10.70 in favor of pullets, or an average gain of twenty-seven cents per pullet in twenty weeks. These pullets cost forty cents per head. At the same rate for ten weeks more the pullets will reach their cost in gain over the old hens.

If one hundred old hens in one year just pay expenses, one hundred pullets at this rate would clear \$70, and sell for just the same as the old hens would have brought at the beginning of the year.

THE students in the class in elementary horticulture assisted in planting one-half acre of potatoes in the University garden, on the afternoon of March 28th.

The variety was the extra Early Ohio. The potatoes were cut to two eyes to a piece, and planted in drills two and a half feet apart, and about five inches deep.

The pieces were dropped sixteen inches apart in the row. Five bushels of seed were used. It is expected that this crop will be ready for market about the middle of June, and that it will yield at least twenty-fold.

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